TRAUMA INJURIES AND EMERGENCY

SURGERY

TERMINAL LEARNING OBJECTIVE (TLO)

- **Condition: Given a list of traumatic injuries.**
- **Action: Identify the potential surgical treatments for each.**
- **Standard: IAW cited references.**

PHASES (FACES) OF DEATH

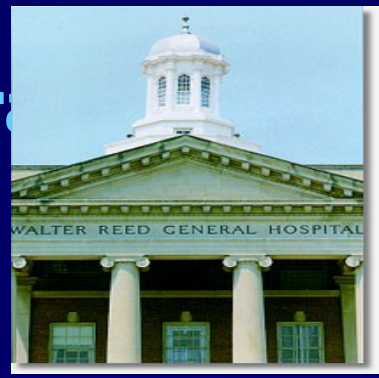
- **PHASE I:**
  - **Occurs immediately after injury.**
  - **Accounts for about 50% of deaths.**
  - **Patients usually die at scene.**
- **PHASE II:**
  - **Occurs within 1 to 2 hours after injury.**
  - **Results in about 30% of the total fatalities.**

PHASES (FACES) OF DEATH

- **PHASE III:**
  - **Occurs days to weeks after injury.**
  - **Usually during the intensive care phase.**
  - **Commonly caused by complications of a failure of multiple organ systems.**

LEVELS OF TRAUMA CENTERS

- **Level I:**
  - **Healthcare providers available on a 24-hour basis.**
  - **Has high-tech equipment for r diagnosis and treatment.**
- **Level II:**
  - **Treat seriously injured patients.**
  - **May lack specialized clinicians and resources required for Level I designation.**



LEVELS OF TRAUMA CENTERS

- **Level III:**
  - **May be a Community Hospital.**
  - **In area that does not have Level I or II facilities.**
- **Level IV:**
  - **Provide life support before transport.**
  - **Located in rural areas with limited access.**
  - **May be a clinic or hospital.**

ADMISSION ASSESSMENT

- **Mechanism of injury- What caused the injury?**
- **History- History of the patient.**
- **Condition- Condition of patient upon arrival, level of consciousness.**
- **Blood Products- If needed, what kind and amount.**

ADMISSION ASSESSMENT CONT.

- **Spine Clearance-** evaluation of spinal injury.
- **Injuries present and other pertinent information-** Presence of family, implied surgical consent been assumed for life or limb threatening injury.

POSSIBLE NURSING DIAGNOSIS

- Anxiety
- Fluid volume deficit related to the excessive blood loss.
- Potential for infection.
- High risk for aspiration
- Acute pain

PLANNING

- **Multiple Operative Procedures.**
  - **May be done simultaneously.**
  - **Order of procedures is determined by the presence or absence of potential life threats.**
  - **Usual priority is chest, abdomen, head and extremeties.**
  - **Priority must be determined for each individual patient situation by surgeon**

PLANNING CONT.

- Simultaneous procedures should be encouraged when physically possible.
- Anesthesia time is decreased for the critically injured patient.
- Definitive surgical interventions are accomplished more rapidly.

INCREASED RISK OF INFECTION

- Wounds can be contaminated with debris such as dirt, grass, or automobile parts.
- Peritonitis is a risk from a perforated stomach.
- Sterile technique may be compromised only to immediate life threat.
- Pouring prep solution across the surgical site may be the only surgical skin prep when life or limb injury exists.

INCREASED RISK OF INFECTION CONT.

- Scrub brushes or a mechanical irrigation-under pressure may be used preoperatively and intraoperatively.
- Care must be used to remove as many contaminants as possible without creating further damage to the wound or body part.
- Control traffic in the operating room.

CONSIDERATIONS

- Availability of equipment.
- Room availability.
- Room size (equipment, staff, and multiple procedures).
- Need for additional staff.
- Capability for auto transfusion or cell-saver.

CONSIDERATIONS CONT.

- **Availability of emergency procedure supplies (including power equipment)**
- **Selection of OR bed.**

EVIDENCE PRESERVATION

- **Physical (bullets, bags of powder, weapons, pills, and other foreign objects).**
- **Cut clothing along seams or around bullet or stab wound holes.**
- **Follow SOP.**

INJURIES OF THE HEAD

- Trauma to the head is responsible for half of all trauma deaths.
- The Glascow Coma Scale cannot be used with pediatric patients or if there is alcohol or drug intoxication.
- Skull fractures usually do not require operative intervention.
- Hematoma evacuation is based on the location, size, and number present.

Blunt Trauma To Face Following Gang Attack

X-Ray of Penetrating Stab Wound

Gunshot Entrance Wound

SPINAL COLUMN

- Always considered injured until proven otherwise.
- Injuries range from complete transection (without hope of recovery), to a contusion of the cord.
- Fractures or dislocation of the vertebrae can result in the protrusion of small pieces of bone into the spinal cord.

INJURIES OF THE NECK

- **Most commonly a result of penetrating trauma.**
- **Neck can be divided into three zones from injury and consequence.**
- **Zone I-**
  - **base of the neck below the clavicles (great vessels and aortic arch, inanimate veins, trachea, esophagus)**

INJURIES OF THE NECK CONT.

- **ZONE II-**
  - **Middle of the neck between the clavicles and mandible (carotid artery, internal jugular vein, trachea, and esophagus).**
- **ZONE III-**
  - **Between the angle of the mandible and the base of the skull.**

INJURIES OF THE ABDOMEN

- The spleen is the most common organ injured in blunt trauma.
- The liver (due to its large size) is the most common organ injured in penetrating trauma.
- Bowel injuries may be missed on abdominal CT during the initial diagnostic period.

INJURIES OF THE ABDOMEN CONT.

- **Diagnostic laparoscopy used for direct visualization of abdominal organs to diminish the need for exploratory laparotomy.**

Spleen Trauma From Automobile Accident, Passenger Struck From Right Side Of Vehicle

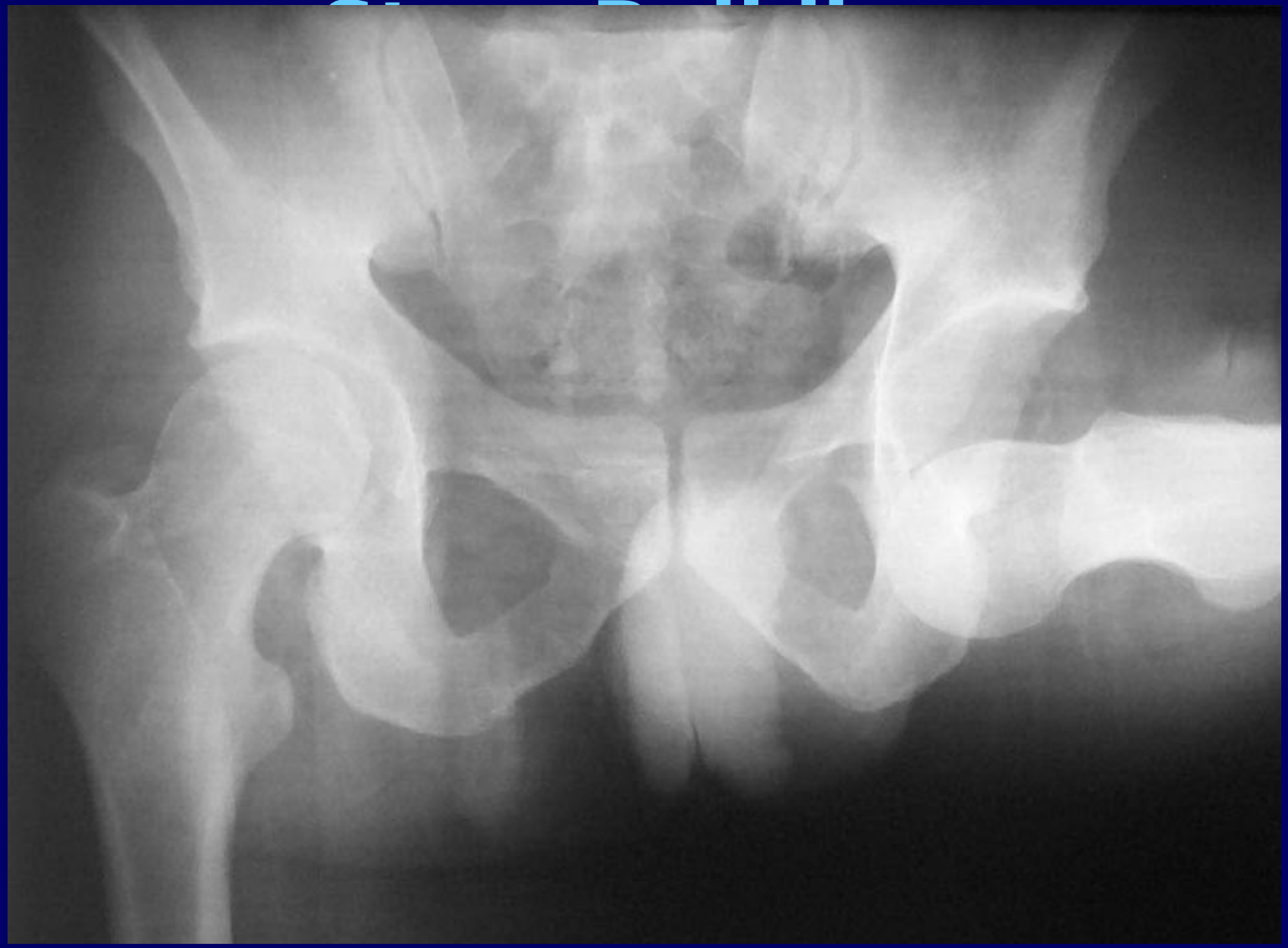
SKELETAL INJURIES

- **Casting, bracing, splinting, and application of traction or hardware fixation can accomplish immobilization of fractures.**
- **Femur fractures can be associated with a high risk of hemorrhage and require traction before surgical repair.**

SKELETAL INJURIES CONT.

- **Closed and open reductions, internal fixators, external fixators and some types of traction may be performed in the Operating Room..**
- **Fractures must be repaired in a timely manner; however, immediate life threats are corrected first.**

X-Ray Of A Hip Fracture Caused By Falling Off A Three



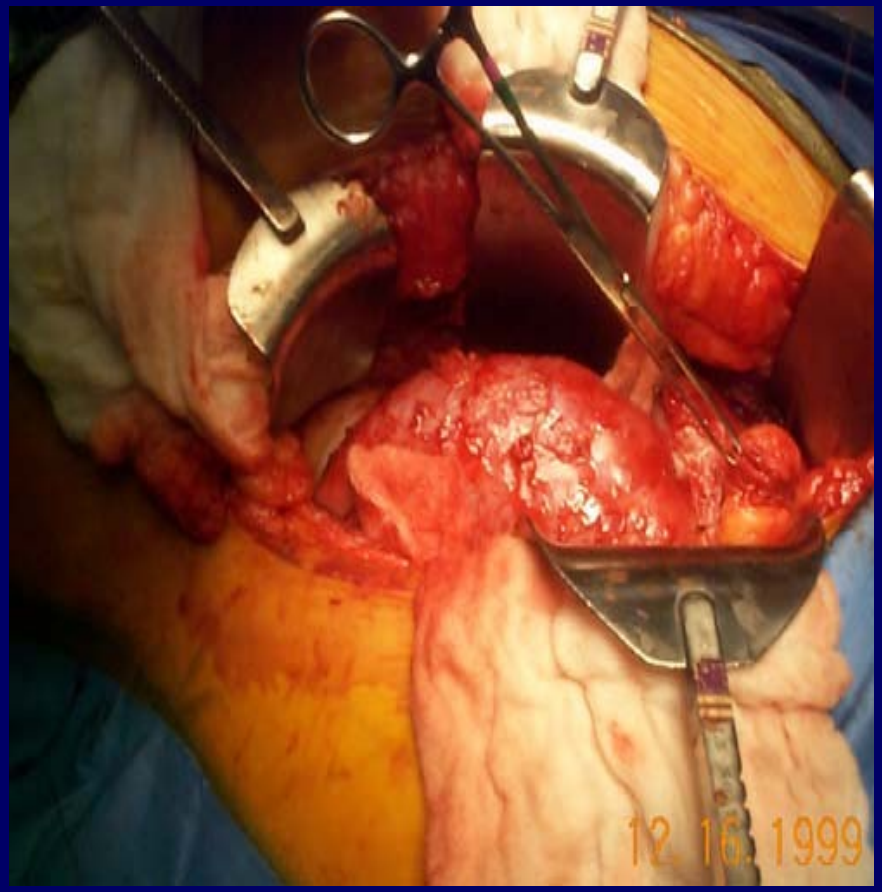
ORGAN/TISSUE PROCUREMENT

- If surgical interventions are not successful, the patient may be declared brain dead.
- Depending on the cause of death and pre-existing medical conditions, the patient may be an organ donor candidate.
- Patients up to age 70 may be considered potential donors.

ORGAN/TISSUE PROCUREMENT CONT.

- The heart is removed first followed by the lungs, pancreas, liver, and kidney.
- Follow OR Standard Operating Procedures. (SOP)

Kidney removal . Kidney is placed in a sponge bowl with ice.



QUESTIONS?

REVIEW

- Phases of trauma.
- Levels of trauma.
- Preoperative Nursing Considerations.
- Admission Assessment.
- Nursing Diagnosis.
- Planning.
- Risk of Infection.

REVIEW

- Considerations.
- Evidence Preservation.
- Surgical Interventions.

Got Pain?